



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/501,153	02/25/2005	Jarrod David Barker	0446-0165PUS1	5340
2292 7590 09/10/2007 BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747			EXAMINER GREENE, JASON M	
			ART UNIT 1724	PAPER NUMBER
			NOTIFICATION DATE 09/10/2007	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary	Application No. 10/501,153	Applicant(s) BARKER ET AL.	
	Examiner Jason M. Greene	Art Unit 1724	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-45 is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 44 and 45 is/are allowed.
- 6) ☒ Claim(s) 1,2,6,7,10,12,13,25 and 26 is/are rejected.
- 7) ☒ Claim(s) 3-5,8,9,11,14-24 and 27-43 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 July 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>7/13/04;11/15/04;5/11/05</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 2, 10, 25 and 26 are rejected under 35 U.S.C. 102(b) as being anticipated by Wilkinson et al. (US 5,976,726).

Wilkinson et al. discloses a fuel cell gas separator comprising a first layer (418) which is formed of a material that is impermeable to gases, a second layer (419) which is formed of a material that is impermeable to gases, the first and second layers having perforations (452) through their thickness which are closed by electrically conductive plug material (454), and a third intermediate layer (414) between the first and second layers which is electrically conductive and is in electrical contact with the plug material in the perforations through the first and second layers, wherein the materials of the first and second layers are the same, wherein the perforations extend perpendicularly through the thickness of the first and second layers, wherein a respective electrically conductive coating (420,421) is provided on the electrically conductive plug material electrode-facing side of each of the first and second layers, and wherein each of the

Art Unit: 1724

coatings extend over a respective electrode-contacting zone of each of the first and second layers in Fig. 4A and col. 4, line 28 to col. 9, line 45.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 6, 7, 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wilkinson et al. (US 5,976,726).

While Wilkinson et al. does not explicitly recite the separator exhibiting the claimed limitations, one of ordinary skill in the art at the time the invention was made would have recognized that the thickness of the three layers and the dimensions and area of the perforations could have been adjusted to provide a desired separation result and pressure drop for a given system, as is well known in the art.

Allowable Subject Matter

5. Claims 44 and 45 are allowed.

6. Claims 3-5, 8, 9, 11, 14-24 and 27-43 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. The following is a statement of reasons for the indication of allowable subject matter:

With regard to claims 3-5, Wilkinson et al. discloses the material of each of the first and second layers being electrically conducting material including graphite foil, carbon resin and metals in col. 8, lines 45-47.

The prior art made of record does not teach or fairly suggest the gas separator of claim 1 wherein the material of each of the first and second layers is zirconia.

With regard to claims 8 and 9, Wilkinson et al. discloses the electrically conductive material of the third intermediate layer being an ion exchange membrane in col. 8, lines 25-26.

The prior art made of record does not teach or fairly suggest the gas separator of claim 1 wherein the electrically conductive material of the third intermediate layer is one of the recited materials.

With regard to claim 11, the prior art made of record does not teach or fairly suggest the gas separator of claim 1 wherein the perforations in the first layer are offset relative to the perforations in the second layer.

With regard to claims 14-24, Wilkinson et al. discloses the electrically conductive plug material comprising a filler material comprising electrically conductive carbon particles and a binder.

The prior art made of record does not teach or fairly suggest the gas separator of claim 1 wherein the electrically conductive plug material is selected from the recited materials.

With regard to claims 27-38, the prior art made of record does not teach or fairly suggest the gas separator of claim 25 wherein the electrically conductive coating on a cathode-facing side is silver or silver alloy or the electrically conductive coating on an anode-facing side is of nickel.

With regard to claims 39-43, the prior art made of record does not teach or fairly suggest the gas separator of claim 1 wherein surface formations defining gas flow passages therebetween are provided on an electrode-facing side of each of the first and second layers, the surface formations being electrically conductive and overlying the perforations containing the electrically conductive plug material.

With regard to claims 44 and 45, Wilkinson et al. discloses a method of forming a fuel cell gas separator comprising providing first (418) and second (419) layers of the gas separator, the first and second layers being formed of material that is impermeable to gases and having perforations (452) through their thickness, and superposing the first and second layers with a third layer (414) of electrically conductive material having a first thickness interposed between the first and second layers in Fig. 4A and col. 4, line 28 to col. 9, line 45.

The prior art made of record does not teach or fairly suggest the method of claim 44 comprising compressing the superposed first, second and third layers under conditions which cause the electrically conductive material to flow to produce a gas separator in which the third layer of electrically conductive material has a second thickness less than the first thickness and the electrically conductive material has flowed into the perforations in the first and second layers to plug the perforations.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The Inagaki et al., Arnold et al., Wang, Liu et al. and Taylor references disclose similar gas separators.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason M. Greene whose telephone number is (571)

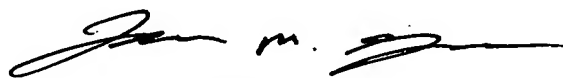
Art Unit: 1724

272-1157. The examiner can normally be reached on Monday - Friday (9:00 AM to 5:30 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on (571) 272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jason M. Greene
Primary Examiner
Art Unit 1724


9/3/07

jmg
September 3, 2007